

acute in a plane at right angles thereto, and not at all dome-shaped, as in *J. gymnocarpa*. At the center of the apex of the seed, or slightly to one side of the center, the ridge bears a darker-colored circular point, which is approximately 0.25 mm. broad and almost as high. The dark-colored ridge-band covers from about one-half to as much as three-fourths of the surface of the seed, the relatively longer seeds being less rounded at the base and having more of their surface covered by the dark-colored band. The concavities are oblong, rounded, shallow depressions regularly and uniformly arranged on opposite sides of the seed. Each face has 3 similar concavities on its upper portion, all 3 situated partly in the light-colored area and partly in the dark-colored area, except that in the longer and narrower seeds one of these concavities lies wholly within the dark-colored area. Likewise at each end of the dark-colored ridge-band are situated 1 or 2 concavities, about 2 mm. long and 1 mm. broad, and slightly deeper than the upper concavities. In the relatively broad seed there is usually one such concavity, and this lies partly in the light-colored area and partly in the ridge-band area, the ridge itself beginning in the concavity, whereas in the longer and narrower seed there are usually 2 concavities at each end of the ridge-band, and situated wholly within its area, being narrowly separated by the ridge, the angle of which is markedly accentuated by the proximity and depth of the two concavities.

Grateful acknowledgement is made for the courteous and valued assistance of Mr. Ernest J. Palmer of the Arnold Arboretum given from time to time while these studies were in progress, and also to Dr. Julian A. Steyermark of the Missouri Botanical Garden for helpful suggestions concerning the manuscript.

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NOTES FROM THE HERBARIUM OF THE UNIVERSITY
OF WISCONSIN—XIV

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VICIA CRACCA AND ITS RELATIVES IN NORTH AMERICA. The range of *Vicia Cracca*, as usually described, includes most of the Middle

West. Nearly all the material the writer has seen¹ from the states of Minnesota, Wisconsin, Iowa, Illinois, and Indiana, identified as *V. Cracca*, belongs to other species. The range of *V. Cracca* in North America appears to be as follows: Greenland; James Bay; Newfoundland to Delaware, west to southeastern Michigan and western Ontario; northeastern Wisconsin; southern Alberta to Washington.

Most frequently mistaken for *V. Cracca* is *V. villosa*, which largely replaces it in the Middle West. The floral differences between these

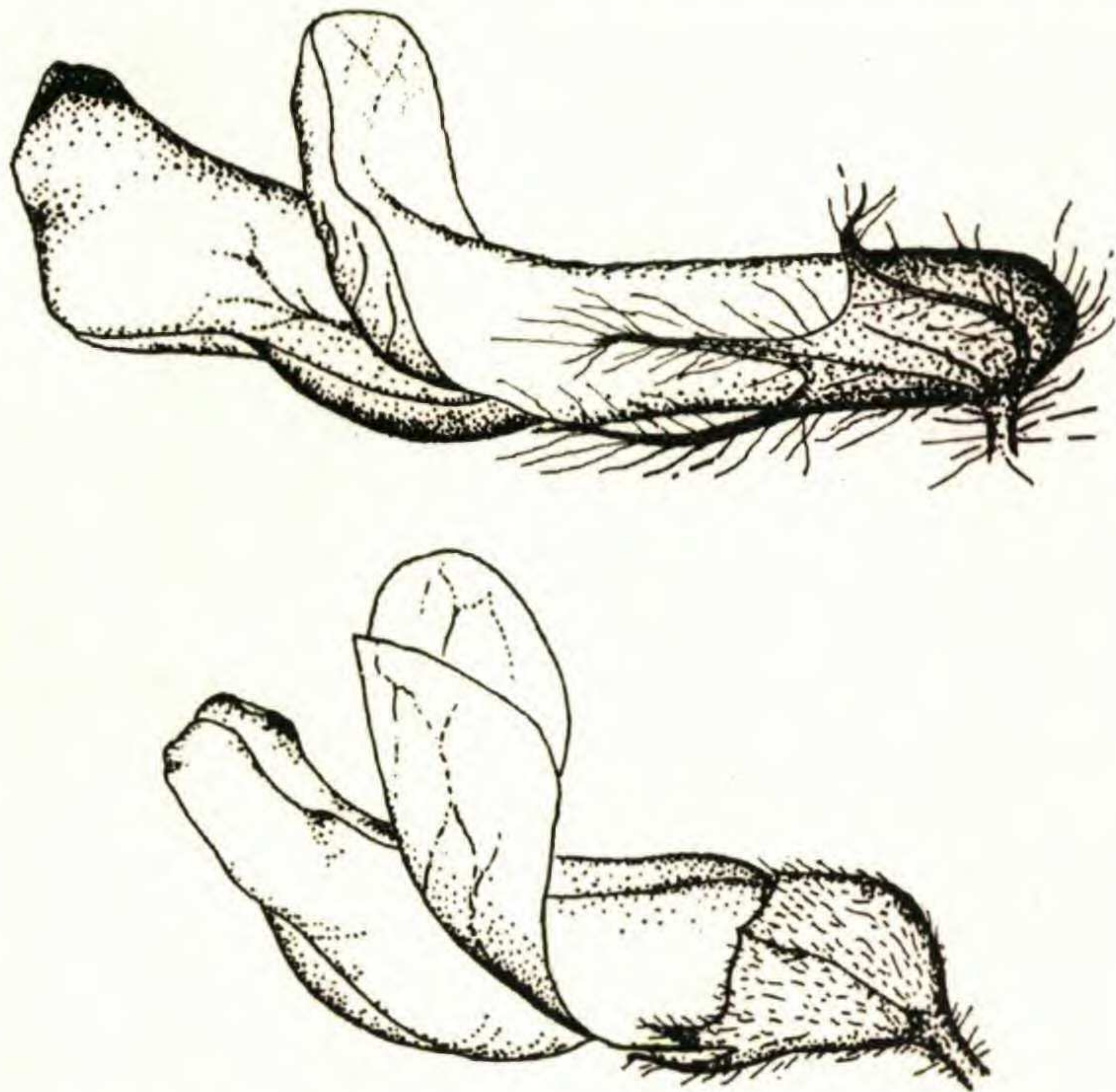


FIG. 1. Flower of *VICIA VILLOSA* (above) and of *V. CRACCA* (below), $\times 5$.

two species are shown in the drawings by Dr. R. I. Evans. *V. villosa* ranges from Maine to South Carolina and Mississippi, westward to California and British Columbia. There is some variation in flower size and in pubescence.

A species not previously recorded from North America is *V. dasycarpa*. Specimens have been seen from Maine, New York, Pennsylvania, New Jersey, Delaware, Virginia, North Carolina, Georgia, Michigan, Montana, and California. All the collections were made

¹ Including collections in the Gray Herbarium, the Britton Herbarium of the New York Botanical Garden, the Academy of Natural Sciences of Philadelphia, the Field Museum of Chicago, the University of Minnesota, the University of Wisconsin, the University of Michigan, Michigan State College, Iowa State College, the Milwaukee Public Museum, and the Herbarium of Mr. C. C. Deam.

within the last two decades, except two. These were both on ballast: Communipaw Ferry, New Jersey, July 7, 1879, and Greenwich Point, Philadelphia, Pennsylvania, May 18, 1898.

A fourth species in this group is *V. tenuifolia*, which is established in the University Orchard at Madison, Wisconsin.

These four species may be distinguished as follows:

- a. Flower less than 4 times as long as broad; limb of standard at least as long as the claw; calyx not gibbous at base, its lobes long-triangular, 1–2.5 mm. long. . . . b.
- b. Limb of standard about equalling the claw; raceme not usually more than 1½ times as long as its subtending leaf. . . . c.
- c. Leaflets glabrous to dull-pilose above; stem appressed-pubescent. . . . d.
- d. Corolla purplish or blue. . . . *V. Cracca* L.
- d. Corolla white. . . . *V. Cracca* f. *albida* (Peterm.) Gams.
- c. Leaflets silvery-silky above; stem tomentose
V. Cracca f. *sericea* (Peterm.) Beck v. Man.
- b. Limb of standard longer than the claw; raceme about twice as long as the subtending leaf. . . . *V. tenuifolia* Roth.
- a. Flower at least 5 times as long as broad; limb of standard less than ½ as long as the claw; calyx strongly gibbous at base above the attachment of the pedicel, its lobes almost thread-like. . . . e.
- e. Plant more or less appressed-pubescent or nearly glabrous; lowest lobe of calyx 1–2 mm. long. . . . *V. dasycarpa* Ten.
- e. Plant with long spreading white hairs; lowest lobe of calyx 2–4 mm. long. . . . f.
- f. Corolla purple to blue. . . . *V. villosa* Roth.
- f. Corolla white. . . . *V. villosa* f. *albiflora* (Schur) Gams.

SOME FORMS OF DESMODIUM. The three species, *Desmodium acuminatum*, *D. nudiflorum*, and *D. pauciflorum*, are ordinarily so easily distinguished on a basis of the distribution of the leaves that this is largely relied upon in most keys. The result is that an occasional specimen with distribution of foliage unusual for the species is nearly always misidentified. A not uncommon form of *D. nudiflorum*¹ with scattered leaves on the flowering stems is often misdetermined as *D. pauciflorum*. A similar form of *D. acuminatum*² sometimes causes confusion. *D. nudiflorum* rarely has leaves clustered on the flowering stem as in *D. acuminatum*.³

¹ *D. NUDIFLORUM* f. *foliolatum* (Farwell) n. comb. *Meibomia nudiflora foliolata* Farwell, Papers Mich. Acad. Sci. i. 95 (1923).

² *D. ACUMINATUM* f. *Chandonnetii* (Lunell) n. comb. *Meibomia grandiflora Chandonnetii* Lunell, Am. Midland Nat. ii. 128 (1911).

³ *D. NUDIFLORUM* f. *personatum*, n. f., caulis cum floribus et cum foliis subverticillatis.—Pastured wooded hillside, Gassner Hollow, Wyalusing, Wisconsin, August 14, 1934, Fassett, no. 16735 (TYPE in the Herbarium of the University of Wisconsin).

There seems to be but one color form recorded in this group, a white-flowered *D. nudiflorum*.¹

There are, of course, adequate floral and vegetative characters besides those too often relied upon in the separation of these three species. The following key should be of use in placing all forms.

- a. Flowers 6–8 mm. long; remains of stamen-tube at base of fruit 6–8 mm. long; stipe of fruit glabrous or minutely granular. . . . b.
- b. Pedicels 5–8 mm. long in fruit; terminal leaflet about as long as broad, with a tapering point 1–2.5 cm. long, light green beneath, with white spreading or appressed hairs on both surfaces; stipules (3–)6–10 mm. long. . . . c.
- c. Leaves clustered about midway on the flowering stem. *D. acuminatum* (Michx.) DC.
- c. Leaves more or less scattered on the flowering stem. *D. acuminatum* f. *Chandonnetii* (Lunell) Fassett.
- b. Pedicels filiform, 1–2 cm. long in fruit; terminal leaflet nearly or quite 1.5 times as long as broad, abruptly pointed or with a tapering tip 0.5 cm. long, whitened beneath and mostly glabrous except on the veins, above with almost microscopic glandular hairs as well as a few scattered larger white hairs; stipules 1.5–3.5 mm. long. . . . d.
- d. Flowers violet. . . . e.
- e. Flowering stem naked. . . . *D. nudiflorum* (L.) DC.
- e. Flowering stem with leaves. . . . f.
- f. Leaves scattered on flowering stem. *D. nudiflorum* f. *foliolatum* (Farwell) Fassett.
- f. Leaves subverticillate on flowering stem. *D. nudiflorum* f. *personatum* Fassett.
- d. Flowers white. . . . *D. nudiflorum* f. *Dudleyi* (House) Fassett.
- a. Flowers 3–6 mm. long, white; remains of stamen-tube at base of fruit 2.5–3 mm. long; stipe of fruit with minute hooked hairs; pedicels less than 1 cm. long in fruit; terminal leaflet about 1.5 times as long as broad, with scattered white appressed hairs above and below, whitened beneath. *D. pauciflorum* (Nutt.) DC.

AMORPHA FRUTICOSA L., var. ANGUSTIFOLIA Pursh, f. **latior**, n. f., foliolis 2–5 cm. longis 1–2 cm. latis.—Stony shore of Lake St. Croix, 10 miles south of Hudson, Wisconsin, August 2, 1934, *Fassett*, no. 17014 (TYPE in Herbarium of the University of Wisconsin).

A. fruticosa var. *vulgaris* Pursh (typical *A. fruticosa*) is fairly constant in the proportions of the leaflets, which are about twice as long as broad, while the more western var. *angustifolia*, which was originally defined as a shrub with narrow leaflet,² may have them

¹ *D. NUDIFLORUM* f. **Dudleyi** (House) n. comb. *Meibomia nudiflora* f. *Dudleyi* House, Bull. N. Y. State Mus. ccxliii–ccxliv. 52 (1923).

² Schneider, Bot. Gaz. xliii. 303 (1907), expresses doubt as to the identity of Pursh's plant. An examination of this specimen, at the Academy of Natural Sciences of Philadelphia, shows it to be identical with the plant with narrow leaflets here treated as var. *angustifolia*.

either very narrow or as broad as in var. *vulgaris*. The most reliable distinction between the two varieties seems to be in the nature of the pubescence of the lower side of the midrib of the leaflets, which is closely appressed in var. *angustifolia* and spreading in var. *vulgaris*. (The amount of pubescence is variable in each). Var. *vulgaris*, while constant in proportions of leaflets and type of pubescence, may have the base of the leaflets either cuneate or rounded. Var. *angustifolia* is constant in having appressed pubescence and cuneate leaflet-bases, but is variable in width of leaflets. Var. *angustifolia* occurs from Wisconsin to Texas, northwestward to southern Saskatchewan, westward to Colorado and southward to northern Chihuahua. Var. *vulgaris*, as here defined, is more eastern, ranging westward to northern Illinois and southern Arkansas. All specimens from Minnesota, Wisconsin, Iowa, Kansas, and Missouri, identified as typical *A. fruticosa*, appear rather to be var. *angustifolia* f. *latior*.

AMORPHA CANESCENS Pursh, f. **glabrata** (Gray) n. comb. *A. canescens* var. *glabrata* Gray, Pl. Wright. i. 49 (1852).

Plants with the leaflets nearly glabrous or with sparse crinkled hairs are of frequent occurrence throughout the range of *A. canescens* in Wisconsin; these often, but not always, have the short rounded leaflets described by Schneider.¹ Leaves which are extreme both in lack of pubescence and in oval shape of leaflets may be found on stems attached to rootstocks which bear also stems with foliage normal for the species.

MADISON, Wisconsin.

NOTES ON THE FLORA OF COLUMBIA, MISSOURI, III.

FRANCIS DROUET

THE following additional changes in the knowledge of the flora of Columbia, Missouri, are based upon recent collections and upon material in the Herbarium of the University of Missouri upon which the Floras of Columbia by Dr. Francis Daniels (Univ. Mo. Stud. 1(2). 1907) and by Dr. H. W. Rickett (Univ. Mo. Stud. 6(1). 1931) were founded. Similar notes have appeared in RHODORA 35: 359-364, 36: 415-417, and 37: 189-196. Dr. J. A. Steyermark and Mr. B. F. Bush have examined most of the specimens and have cooperated in many

¹ L. c. 300.